

Radiation Reference Tables



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RADIATOR RATINGS

The output of a radiator is measured in square feet of direct radiation. To determine the number of square feet of direct radiation in a radiator

1. Identify the style of radiator—See Fig. 1 below.
2. Measure the height and width of the radiator.
3. Count the number of tubes in a section.
4. Count the number of sections.
5. Determine the square feet of radiation per section from the appropriate table and multiply by the number of sections.

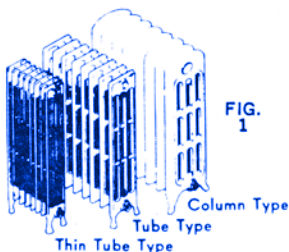


FIG. 1

Fig. 1 shows the relative sizes of radiator styles. All are four tube, eight section radiators but each rating is different.

EXAMPLE

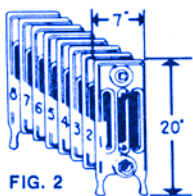


FIG. 2

Fig. 2 shows a tube type radiator, 20" high by 7" wide. There are four tubes per section and eight sections. The table on page four shows this size radiator has $2\frac{1}{4}$ square feet of radiation per section. $2\frac{1}{4}$ times 8 (the number of sections) equals 18 square feet of direct radiation in the radiator.

NOTE: All radiator dimensions and ratings in this booklet are approximate. Ratings should be used for checking the total radiation connected to an existing boiler.

WEIL-MCLAIN BASEBOARD RADIATION RATINGS

Capacities per Lineal Foot in BTU/Hr. with 65° F. Entering Air

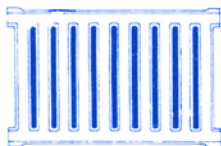
CAST IRON BASEBOARD

MODEL	STEAM RATING SQ. FT. STEAM @ 215° F.	WATER FLOW RATE — 500 LBS./HR. OR 1 GPM						
		AVERAGE WATER TEMPERATURE BETWEEN INLET AND OUTLET — ° F.						
No. 9	3.35	150	160	170	180	190	200	215
		390	450	510	570	640	700	800

CONVECTOR BASEBOARD

MODEL	WATER FLOW RATE — 500 LBS./HR. OR 1 GPM							
	AVERAGE WATER TEMPERATURE BETWEEN INLET AND OUTLET — ° F.							
Model 75 WLT ($\frac{3}{4}$ " Tube) THERMA TRIM	170	180	190	200	210	220	230	240
	500	570	630	690	760	820	—	—
Model 75 H ($\frac{3}{4}$ " Tube) HIGH TRIM	680	760	850	940	1,030	1,110	1,200	1,290

WALL TYPE RADIATORS



Size	Sq. Ft. Per Radiator
13½" x 17" x 3"	5
13½" x 21" x 3"	6
13½" x 22" x 3"	7
13½" x 29" x 3"	9

SECTIONAL WALL TYPE RADIATORS



Height	37"	26½"	21½"	15"	13⅞"
Sq. Ft. Radiation Per Section	2½	1⅘	1½	1	¾

RADIATOR RATING STANDARDS

A SQUARE FOOT OF STEAM RADIATION is based on a heat emission of 240 BTU per hour per square foot, with standard 70° F. air temperature and 215° F. steam temperature in the radiator. A SQUARE FOOT OF WATER RADIATION is based on a heat emission of 150 BTU per hour per square foot, with standard 70° F. air temperature and an average water temperature in the radiator of 170° F.

A different rate of heat emission will be obtained when the average water temperature in the radiator is higher or lower than 170° F. See table below.







EXAMPLE: A structure has a calculated heat loss of 63,000 BTU and an average water temperature in the radiators of 200° F. As shown in the heat emission table, with 200° F. average water temperature, the heat emission is 210 BTU per square foot of radiation. Therefore the footage which must be used in selecting radiators is 300 sq. ft. ($63,000 \div 210 = 300$). Select the boiler on 63,000 BTU net rating.

HEAT EMISSION based on Room Temperature of 70° F.

AVERAGE WATER TEMP. IN RADIATORS °F							
150	160	170	180	190	200	210	215
HEAT EMISSION BTU PER HOUR SQ. FT.							
110	130	150	170	190	210	230	240


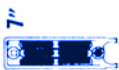



OLD STYLE COLUMN RADIATORS

SQ. FT. OF RADIATION PER SECTION

		NO. OF COLUMNS										
		1	2	3	4	5	6					
Width →		4 1/2"		7 3/8"		9"		11 1/2"		12 1/2"		12 1/2"
Height In.		45"	3 1/2"	5	6	10	10	—	—	—	—	—
		38"	3	4	5	8	10	—	—	—	—	—
		32"	2 1/2	3 1/3	4 1/2	6 1/2	8 1/2	—	—	—	—	—
		26"	2	2 2/3	3 3/4	5	7	—	—	—	—	—
		23"	1 2/3	2 1/3	3 1/4	4 1/2	—	—	—	—	—	—
		22"	1 2/3	2 1/4	3	4	6	—	—	—	—	—
		20"	1 1/2	2	2 3/4	3 1/2	5	—	—	—	—	—
		18"	1 1/3	1 3/4	2 1/4	3	5	—	—	—	—	—
		17"	—	—	—	—	—	—	—	—	—	—
		16"	—	—	—	—	—	—	—	—	—	—
		15"	—	1 1/2	—	—	—	—	—	—	—	—
		14"	—	—	—	—	—	—	—	—	—	—
		13"	—	—	—	—	—	—	—	—	—	—






TUBE TYPE RADIATORS

SQ. FT. OF RADIATION PER SECTION

		NO. OF TUBES				
		3	4	5	6	7
Width →		5" 	7" 	8 ³ / ₄ " 	9 ³ / ₄ " 	12 ¹ / ₂ " 
Height In.		3 ¹ / ₂	4 ¹ / ₄	5	6	—
	38"	3 ¹ / ₂	4 ¹ / ₄	5	6	7
	36"	3	3 ¹ / ₂	4 ¹ / ₃	5	6
	32"	2 ¹ / ₃	2 ³ / ₄	3 ¹ / ₂	4	5
	26"	2	2 ¹ / ₂	3	3 ¹ / ₂	4 ¹ / ₂
	23"	—	—	—	—	4 ¹ / ₂
	22"	—	—	—	—	—
	20"	1 ³ / ₄	2 ¹ / ₄	2 ² / ₃	3	3 ² / ₃
	18"	—	—	—	—	3 ¹ / ₂
	17"	—	—	—	—	3
	16"	—	—	—	—	3
	14"	—	—	—	—	2 ¹ / ₂

THIN TUBE RADIATORS

SQ. FT. OF RADIATION PER SECTION

		NO. OF TUBES					
		2	3	4	5	6	
Width →		 3 1/2"	 4"	 4 3/4"	 6"	 7 7/8"	
Height In.	38"	2.5	2.6	—	—	—	—
	32"	2.0	2.4	—	—	—	3.7
	26"	—	—	2.4	3.0	3.0	3.0
	25"	1.6	1.6	2.0	—	—	3.0
	23"	—	—	—	2.1	—	—
	22"	1.3	1.4	1.8	—	—	—
	20"	—	—	1.8	—	—	2.3
	19"	1.1	1.2	1.6	—	—	2.3
	17"	—	—	—	2.0	—	—

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